

31. The process according to claim 14, wherein said operations of preparation of the surfaces comprises degreasing.

32. The process according to claim 14, wherein said operations of preparation of the surfaces comprises electrolytic conversion.

33. The process according to claim 15, wherein said preliminary painting cycles are carried out with the use of liquid paints.

34. The process according to claim 15, wherein said preliminary painting cycles are carried out with the use of powder paints.--

REMARKS

Reconsideration and withdrawal of the Examiner's rejection of the above-identified application is respectfully requested in view of the foregoing amendments and following remarks. Claims 12-21 and 30-34 are in the application. Claims 12-17 and 19-20 have been amended. Claims 30-34 have been added. No new matter has been added.

The Examiner objected to claim 20, stating that it did not further limit claim 12. Applicant has amended claim 20 to overcome this objection.

The Examiner rejected claims 12-21 under 35 USC 112 for various reasons. Applicant has amended claims 12-17 and 19-20 to overcome these rejections.

Specifically, regarding the term "tight-covering", it is observed that "performing the tight-covering of the artefact to be decorated" simply means covering the artefact to be decorated with the transfer support, so that no portion of the surface to be decorated remains uncovered. This would be derived unambiguously by the skilled person who studies the specification, and in particular looks at Figure 1 thereof. It is self-evident from such figure that the transfer support is laid down on the upper and side parts of the artefact, i.e. on the parts which are to be decorated, so as not to leave any of such parts uncovered. The next step, i.e. vacuum creation, assures that the transfer support, which initially simply covers the artefact, is kept in intimate contact with the latter, so that the decoration can be transferred on the artefact. Applicant has therefore replaced the term "tight-covering" with "covering".

In claim 14, the phrase "such as cleaning, degreasing and/or electrolytic conversion" has been deleted. New claims 30-32 have been added to specify that the operations of preparation of the surfaces can comprise respectively cleaning, degreasing and electrolytic conversion, as previously disclosed after the phrase "such as" in claim 14.

In claims 15 and 16, the phrase "realizable with the use of liquid or powder paints" has been deleted. New claims 33 and 34 have been added to specify that the preliminary painting cycles are carried out with the use of liquid paints or powder paints respectively. Claim 17 has been amended so as to overcome the Examiner's objection concerning insufficient antecedent basis for the expression "the handling and/or installation". Finally, in claim 19 the phrase "i.e.", and the following words have been deleted.

It is believed that the claims so amended fulfil the requirements of second paragraph of 35 USC § 112, i.e. that the claims shall particularly point out and distinctly claim the subject matter which the applicant regards as his invention.

The Examiner rejected claims 12 and 20 under 35 USC 102 as being anticipated by Deroode. Applicant respectfully traverses. Independent claim 12 discloses a process for the realization of painted and/or variously decorated artefacts, from metal materials, ceramic materials, wood, plastics, utilizing the technique of the transfer of monochrome or polychrome patterns or figures reproduced on a transfer support, by means of the combined action of pressure and temperature, comprising the following steps: - performing the wrapping up or covering of the artefact to be decorated, with a sublimable colour transfer support, having the form of a sheet, comprising a supporting base from gas-tight thermoformable plastic material, the pattern or decoration to be transferred to the

artefact to be decorated being carried on said support base; - creating a vacuum between said artefact and said support, through a workbench onto which said artefact is placed, so as to cause the transfer support to uniformly adhere to the surface of the artefact to be decorated; - submitting the so treated artefact to a heating action at temperatures of 200-230°C, for a time of from about 30 seconds to 30 minutes, to perform the transfer and the polymerization of the final colours from the transfer support to the artefact; - removing, after cooling, said exhausted supporting base from the decorated surface of the artefact.

Claim 12 discloses a step in which a vacuum is created between the artefact to be decorated and the transfer support carrying the pattern or decoration to be transferred, through a work bench onto which said artefact is placed. Deroode does not contain any teaching concerning creating a vacuum through a work bench because, according to Deroode, the vacuum is created in "a vacuum chest 20, that is to say an enclosure connected by a conduit 21, controlled by a valve 22, to a suction or vacuum source 23" (see column 5, lines 60-63). The skilled person who reads Deroode would be led to place the artefact to be decorated on a work bench 30 (numerals are referred to Deroode), provide a vacuum chest in which the work bench, and the artefact placed thereon, can be introduced, close the vacuum chest and create the vacuum in said vacuum chest, through the conduit which connects the vacuum chest to the vacuum source.

There is no suggestion in Deroode about the possibility of creating the vacuum directly through the work bench; on the contrary, Deroode leads the skilled person away from such a possibility, since the work bench according to Deroode (i.e., the bracket 30) may even be non-porous (see column 6, lines 29-30). The apparatus according to Deroode is capable of working with a non-porous work bench because the vacuum is created through the vacuum chest and not through said work bench. On the contrary, the work bench disclosed in the present application must be provided with, for example, conduit means that can be connected to a vacuum source so that vacuum is created between the artefact to be decorated and the transfer support.

Therefore, the invention disclosed in claim 12 is patentable over the prior art, in particular over Deroode. The invention disclosed in claim 12 has several advantages over the decoration system disclosed in Deroode. First of all, the invention disclosed in claim 12 allows significant amounts of energy to be saved in the vacuum creation step, since only the air between the artefact and the transfer support has to be sucked by the vacuum source, i.e. a relatively small quantity of air. On the contrary, in the apparatus according to Deroode, all the air contained in the vacuum chest has to be sucked in order to make the transfer support adherent to the artefact to be decorated. The vacuum chest obviously contains a greater amount of air than that entrapped between the artefact and the transfer support according to claim 12, particularly if the artefact to be decorated has large overall dimensions, as the case

may be when profiled elements with a length of several meters are to be decorated.

Thus, the energy consumed by an apparatus according to Deroode is dramatically higher than that consumed acting as disclosed in the present application. Due to the need for saving energy, the apparatus according to Deroode is not suitable for decorating objects having a wide range of dimensions. For example, a vacuum chest capable of housing a profiled element with a length of several meters cannot be used to decorate an eyeglass spectacle unless wasting enormous energy amounts is accepted. On the other hand, a work bench according to claim 12, having such dimensions as to receive a long profiled element, can certainly be used to decorate objects of small dimensions. If it is desired to optimize the energy consumption in the latter case, it is sufficient to close some the conduit means which connect the work bench to the vacuum source, so as to suck air through the work bench only in the region where the object to be decorated rests. An analogous action in the apparatus according to Deroode, i.e. closing some of the conduit means which connect the vacuum chest to the vacuum source, would involve no appreciable results.

It is furthermore observed that the apparatus according to Deroode needs a series of complicated devices which are not required according to the invention disclosed in claim 12. For example, since the transfer support disclosed by Deroode is in the form of a ribbon unwound from a supply spool 39, complicated supply

means are required in order to unwind the ribbon from said supply spool. On the contrary, according to claim 12, the transfer support is in the form of a sheet, which can be previously prepared and which only needs to be placed on the artefact to be decorated, for example manually, without requiring any special mechanical device for its preparation.

In addition, according to Deroode, the artefact to be decorated is placed on the bracket 30 which is fitted movably between a retracted position, in which said artefact is at a certain distance from the transfer support closing the upper wall of the vacuum chamber, and a deployed position, in which the artefact is brought in contact with the transfer support. Thus, driving means for moving the artefact between these two positions are needed, which makes the design, assembling and maintenance of the apparatus more complicated. Furthermore, if big and heavy artefacts have to be decorated, inertial forces arise during the movements between the abovementioned two positions, which can cause damages or breakage of the apparatus according to Deroode. None of these problems arise in the invention according to claim 12, since the artefact to be decorated simply rests on the work bench and is covered with the transfer support, no movement being required for such artefact during operation.

It is therefore believed that claim 12 is inventive over the prior art and meets all the patentability requirements provided by the U.S. Patent Law. Claim 20 defines an embodiment of the

invention, in which the transfer support is laid down on the artefact to be decorated. For the reasons explained above, and in particular since Deroode does not disclose a workbench through which vacuum is created, claim 20 has to be considered new and inventive over the prior art.

The Examiner rejected claims 13 and 21 under 35 USC 103 as being unpatentable over Claveau in view of Deroode. Claim 13 discloses a process for the realization of painted and/or variously decorated artefacts, from metal materials, ceramic materials, wood, plastics, utilizing the technique of the transfer of monochrome or polychrome patterns or figures reproduced on a transfer support, by means of the combined action of pressure and temperature, comprising the following steps: - performing the wrapping up or covering of the artefact to be decorated, with a sublimable colour transfer support, having the form of a bag, or a stocking, or an envelope, comprising a supporting base from gas-tight thermoformable plastic material, the pattern or decoration to be transferred to the artefact to be decorated being carried on said support base; - creating a vacuum between said artefact and said support, through an open end of said support, so as to cause the transfer support to uniformly adhere to the surface of the artefact to be decorated; - submitting the so treated artefact to a heating action at temperatures of 200-230°C, for a time of from about 30 seconds to 30 minutes, to perform the transfer and the polymerization of the final colours from the transfer support to

the artefact; - removing, after cooling, said exhausted supporting base from the decorated surface of the artefact.

Claveau differs from the invention disclosed in claim 13 not only because, as the Examiner noticed, no information is given in Claveau concerning the length of the heating step, and no mention is made about the removal of the exhausted transfer support. The most important difference between Claveau and claim 13 is that, while according to the present application the transfer support comprises a supporting base on which the pattern or decoration to be transferred is carried, according to Claveau the inker 3' carrying the pattern or decoration is associated to a separate elastic membrane 8a, 8b having the function of keeping the inker 3' in contact with the artefact to be decorated. In other words, while claim 13 discloses a process in which a single transfer sheet is used, carrying the decoration directly on one side thereof, Claveau discloses a process in which two separate sheets are used, i.e. a first sheet (the inker) carrying the decoration, and a second sheet (the elastic membrane) keeping the first sheet adherent to the artefact.

The two-sheets structure disclosed in Claveau has the great drawback that, if movements of the inker 3' in relation to the elastic membrane 8a, 8b occur during the decoration phase, the accuracy of the final decoration is lost. A defective decoration can be obtained because, for example, during the vacuum creation phase, sliding has occurred between the inker and the elastic

membrane, or because the inker were not perfectly laid on the artefact and wrinkles were formed inside the elastic membrane. A skilled person who reads Claveau would never look at Deroode when trying to improve Claveau's invention. In fact, Claveau relates to a system in which an artefact to be decorated is completely wrapped by the inkers and the elastic membranes, and vacuum is created between the elastic membranes and the artefact. Deroode relates to a system in which the artefact is placed in a vacuum chest, the upper wall of which is covered by the transfer support; the artefact is then brought in contact with the transfer support and vacuum is created in the vacuum chest, so that the transfer support adheres to the artefact.

The decoration systems disclosed in Deroode and in Claveau have nothing in common and no reason can be seen for combining the teachings of Claveau with those of Deroode. However, even if a skilled person combined the teachings of the latter two documents, he would never arrive at the claimed invention. A person who is aware of Claveau and reads Deroode would simply cover the upper wall of the vacuum chamber with a transfer support and with an elastic membrane in place of the transfer support alone. No reason can be found for removing the vacuum chamber disclosed in Deroode and arriving at the claimed invention. Arguing that the skilled person who combines Claveau and Deroode arrives at wrapping the artefact to be decorated with a single transfer support, instead of an inker + an elastic membrane, is the result of an ex post facto

analysis which cannot be justified. Accordingly, Applicant submits that claim 13 is patentable over the prior art.

Claim 21 clarifies how the wrapping of the artefact to be decorated is carried out in a preferred embodiment and is patentable over the prior art for the same reasons which were discussed above in connection with claim 13.

Since neither U.S. Patent No. 4,314,814 (Deroode), nor U.S. Patent No. 4,411,667 (Meredith), nor U.S. Patent No. 4,923,847 (Ito) discloses creating a vacuum through a work bench on which the artefact to be decorated is placed, claims 14-19 and 30-34 are considered to be patentable over the prior art. Early allowance of the amended and new claims is respectfully requested.

Respectfully submitted,  
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Enclosure: Appendix A  
Copy of petition for a 3-month extension of time

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231, on May 7, 2002.

  
Lisa L. Vulpis

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## APPENDIX A

Marked-up copy of amended claims 12-17 and 19-20.

12. (Amended) A process for the realisation of painted and/or variously decorated artefacts, from metal materials, ceramic materials, wood, plastics, utilising the technique of the transfer of monochrome or polychrome patterns or figures reproduced on a transfer support, by means of the combined action of pressure and temperature, comprises the following steps:

- performing the wrapping up or [tight-] covering of the artefact to be decorated, with a sublimable colour transfer support, having the form of a sheet, comprising a supporting base from gas-tight thermoformable plastic material, the pattern or decoration to be transferred to the artefact to be decorated being carried on said support base;

- creating a vacuum between said artefact and said support, through a work bench onto which said artefact is placed, so as to cause the transfer support to uniformly adhere to the surface of the artefact to be decorated;

- submitting the so treated artefact to a heating action at temperatures of 200-230°C, for a time of from about 30 seconds to 30 minutes, to perform the transfer and the polymerisation of the final colours from the transfer support to the artefact;

- removing, after cooling, said exhausted supporting base from the decorated surface of the artefact.

13. (Amended) A process for the realisation of painted and/or variously decorated artefacts, from metal materials, ceramic materials, wood, plastics, utilising the technique of the transfer of monochrome or polychrome patterns or figures reproduced on a transfer support, by means of the combined action of pressure and temperature, comprises the following steps:

- performing the wrapping up or [tight-] covering of the artefact to be decorated, with a sublimable colour transfer support, having the form of a bag, or a stocking, or an envelope, comprising a supporting base from gas-tight thermoformable plastic material, the pattern or decoration to be transferred to the artefact to be decorated being carried on said supporting base;

- creating a vacuum between said artefact and said support, through an open end of said support, so as to cause the transfer support to uniformly adhere to the surface of the artefact to be decorated;

- submitting the so treated artefact to a heating action at temperatures of 200-230°C, for a time of from about 30 seconds to 30 minutes, to perform the transfer and the polymerisation of the final colours from the transfer support to the artefact;

- removing, after cooling, said exhausted supporting base from the decorated surface of the artefact.

14. (Amended) The process according to claim 12, wherein said artefact to be decorated is firstly submitted to operations of preparation of the surfaces [, such as cleaning, degreasing and/or electrolytic conversion].

15. (Amended) The process according to claim 12, wherein said artefact to be decorated is submitted to one or more preliminary painting cycles, [realisable with the use of liquid or powder paints,] to avoid diffusion phenomena with the colours of the transfer support, before the decoration step.

16. (Amended) The process according to claim 14, wherein said artefact to be decorated is submitted to one or more preliminary painting cycles, [realisable with the use of liquid or powder paints,] to avoid diffusion phenomena with the colours of the transfer support, before the decoration step.

17. (Amended) The process according to claim 12, wherein said exhausted supporting base is removed from the decorated surface of the artefact after [the handling and/or installation of] handling and/or installing the decorated artefact.

19. (Amended) The process according to claim 12, wherein said artefact wrapped up or covered with said sublimable colour transfer support adhering by effect of the vacuum to the surface to be decorated, is submitted to a first intermediate heating action at a temperature at which the thermoforming occurs [, i.e. the deformation and perfect and uniform adhesion of the transfer support to the surface of the artefact].

20. (Amended) The process according to claim 12, wherein said transfer support [has the form of a sheet to be] is laid down on the surface to be decorated of said artefact.